

Self-reported prevalence of missing teeth and unmet prosthetic treatment needs among a population of Nigerian undergraduate students

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ABSTRACT

Background: Tooth loss is an indicator of the oral health status of the population. In developing countries, missing tooth/teeth replacement constitutes a high unmet dental need. Missing tooth/teeth among undergraduate student is a cause for concern. **Objective:** This study was designed to assess the self-reported prevalence of missing teeth and unmet prosthetic needs among university undergraduate students. **Methods:** Data for the study was collected by means of a self-administered questionnaire. The questionnaire consisted of 3 sections: the first section sought demographic information, the second section consisted of 5 questions that tried to find out the missing teeth status of the respondents and the third section tried to find out prevalence of missing teeth and the unmet prosthetic needs of the respondents. Data obtained was analyzed using IBM SPSS version 21.0. Descriptive statistics (frequencies and counts), cross-tabulations as well as Chi square were used to analyze the data. **Result:** More than half (64.1%) were females while 67.3% were between 16 and 21 years of age. The prevalence of missing teeth among the respondents was 38.3% with missing anterior teeth making up 56.1%. Of the respondents who had missing teeth 60.5% had a form of replacement for their missing teeth bringing the unmet prosthetic need to 39.5%. There was a statistically significant association between tooth missing and replacement status with a higher proportion (66.3%) of anterior teeth being replaced. There was no statistically significant association between missing teeth and gender, age group, marital status, faculty of study and level of study. **Conclusion:** The prevalence of missing teeth and unmet prosthetic need was high, highlighting the need for oral health education and increased awareness of the possible prosthetic rehabilitation procedures available for replacing missing teeth.

Keywords: Prevalence, Unmet prosthetic need, Missing teeth

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Introduction

Tooth loss is an indicator of the oral health status of the population.¹ In developing countries, missing tooth/teeth replacement constitutes a high unmet dental need.² It has been attributed to high prevalence of caries and periodontal disease in Nigeria,³ it may be related with educational levels and income status, with those in the lower levels exhibiting higher risks of becoming totally edentulous.^{4,5} Marcus et al observed that the prevalence of edentulism had no relationship with gender.⁶ There have also been reports that there was an

inverse relationship between the level of education and edentulism.⁷

Attention has also been drawn to the emotional effects of total and partial tooth loss with a wide range of reactions including feeling of bereavement, loss of self-confidence, concerns about appearance and self-image, keeping tooth loss a secret, seeing it as a taboo subject that could not be discussed with people.⁸ When prosthetic treatment is not provided in the advent of missing teeth, it could cause a lot of damage that could affect not only the remaining teeth but the entire stomatognathic system.⁹

In a previous study² it was reported that the unmet prosthetic needs among a group of young adults was high, the reason being ignorance and misinformation about tooth replacement. This previous study assessed undergraduate medical students only which is not a true reflection of the undergraduate population.

The oral health needs of young adults tend to differ from the general population¹⁰ with older adults having higher prevalence of missing teeth.¹¹ It has been advocated that research on prevalence of missing teeth among different population groups should be carried out.¹² Furthermore, there is paucity of studies on the prevalence of missing teeth among undergraduates. Hence the aim of the study is to assess the prevalence of missing teeth and unmet prosthetic needs among university of Benin undergraduate students.

Materials and methods: This was a descriptive cross-sectional study of undergraduate students at the University of Benin, Benin City. The population for the study was drawn from students in the university hostel of residence. A multistage sampling technique was

employed to pick the study population. The first stage involved selection of the students' hostel. Four hostels were selected out of the eight undergraduate hostels using simple ballot. The second stage involved selection of hostel rooms. The hostels had on the average 240 rooms, 30 rooms each were picked from each hostel with every 8th room selected. The third stage involved the use of convenient sampling technique to pick participants for the study from the 120 rooms selected. All students in the selected rooms who gave informed consent participated in the study.

Data for the study was collected by means of a self-administered questionnaire.

The questionnaire consisted of 3 sections: the first section sought demographic information (age, gender and marital status) while the second section consisted of 5 questions that tried to find out the missing teeth status of the respondents and the third section sought to assess prevalence of missing teeth and the unmet prosthetic needs of the respondents.

Ethics: Ethical approval was sought from the Research and Ethics committee of the College of Medical Sciences of the University of Benin (Ref. CMS/PO/109/vol.7/179)

Statistics: Data obtained was analyzed using IBM SPSS version 21.0. Descriptive statistics (frequencies and counts), cross-tabulations as well as Chi square were used to analyse the data.

Results: Four hundred and ten students were recruited for the study with a response rate of 100%. More than half (64.1%) were females while 67.3% were between 16-21 years of age. Majority (92.9%) were single (Table 1). The faculties of Law, Arts and education collectively accounted for 27.1%, Medical sciences 21.7% and the least (14.9%)

representation by the faculties of Management and Social sciences (Figure 1). Figure 2 illustrates the level of study of the respondents. Second year students accounted for 37.3% of the respondents with the least represented level of study being first year students (17.3%).

The self-reported prevalence of missing teeth among the respondents was 38.3% with missing anterior teeth making up 56.1%. Of the respondents who had missing teeth 60.5% had a form of replacement for their missing teeth bringing the unmet prosthetic need to 39.5%.

There was a statistically significant association between tooth missing and replacement status with a higher proportion

(71.3%) of anterior teeth being replaced ($X^2 = 10.29$, $df = 1$, $p=0.001$). The odds of replacing a missing anterior tooth was 0.343 times the odds of replacing a missing posterior tooth (Table 2).

Table 3 demonstrates that there was no statistically significant association between missing teeth and gender, age group, marital status, faculty of study and level of study.

There was no statistically significant association between replacement status of missing teeth and gender, age group, marital status, faculty of study and level of study. The odds of a male replacing a missing tooth was 0.534 times the odds of a female replacing a missing tooth (Table 4)

Table 1: Demographic characteristics of the respondents

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	147	35.9
Female	263	64.1
Age group (years)		
16-21	276	67.3
22-27	120	29.3
28-33	10	2.4
>33	4	1.0
Marital status		
Single	381	92.9
Married	23	5.6
Divorced	6	1.5
Total	410	100

Table 2: Distribution of missing teeth by replacement status

Missing teeth	Replacement status		Total (n/%)
	Not replaced (n/%)	Replaced (n/%)	
Anterior teeth	25(28.4)	63(71.6)	88(100.0)
Posterior teeth	37(53.6)	32(46.4)	69(100.0)
Total	62(39.5)	95(60.5)	157(100.0)

$\chi^2 = 10.29$, $df = 1$, $p=0.001$, $OR= 0.343$ (0.18-0.67)

Table 3: Distribution of presence of missing teeth by gender, age, marital status, faculties and level of study

characteristics	Missing teeth		Total(n/%)
	No(n/%)	Yes(n/%)	
Gender			P=0.23
Male	85(57.8)	62(42.2)	147(100.0)
Female	168(63.9)	95(36.1)	263(100.0)
Age group(years)			P=0.166
16-21	162(58.7)	114(41.3)	276(100.0)
22-27	80(66.7)	40(33.3)	120(100.0)
28-33	70(70.0)	3(30.0)	10(100.0)
>33	4(100.0)	0(0.0)	4(100.0)
Marital status			P=0.72
Single	237(62.2)	144(37.8)	381(100.0)
Married	13(56.5)	10(43.5)	23(100.0)
Divorced	3(50.0)	3(50.0)	6(100.0)
Faculty of study			P=0.55
Medical sciences	58(65.2)	31(34.8)	89(100.0)
Law, Arts and Education	72(64.9)	39(35.1)	111(100.0)
Life and physical sciences	47(55.3)	38(44.7)	85(100.0)
Management and Social sciences	35(57.4)	26(42.6)	61(100.0)
Agric and Engineering sciences	41(64.1)	23(35.9)	64(100.0)
Level of study			P=0.52
1 st year	45(63.4)	26(36.6)	71(100.0)
2 nd year	96(62.7)	57(37.3)	153(100.0)
3 rd year	63(64.9)	34(35.1)	97(100.0)
4 th year and above	49(55.1)	40(44.9)	89(100.0)
Total	253(61.7)	157(38.3)	410(100.0)

Table 4: Distribution of replacement status by gender, age group, marital status, faculties and level of study

characteristics	Replacement status		Total	
	Not replaced(n/%)	Replaced(n/%)		
Gender				P=0.067
Male	19(30.6)	43(69.4)	62(100.0)	
Female	43(45.3)	52(54.7)	95(100.0)	
				OR=0.534(0.23-1.08)
Age(years)				P=0.27
16-21	48(42.1)	66(57.9)	114(100.0)	
22-27	14(35.0)	26(65.0)	40(100.0)	
28-33	0(0.0)	3(100.0)	3(100.0)	
Marital status				P=0.79
Single	58(40.3)	86(59.7)	144(100.0)	
Married	3(30.0)	7(70.0)	10(100.0)	
Divorced	1(33.3)	2(66.7)	3(100.0)	
Faculty				P=0.08
Medical sciences	6(19.4)	25(80.6)	31(100.0)	
Law, Arts & Education	18(46.2)	21(53.8)	39(100.0)	
Life & physical sciences	15(39.5)	23(60.5)	38(100.0)	
Management & Social sciences	14(53.8)	12(46.2)	26(100.0)	
Agric & Engineering	9(39.1)	14(60.9)	23(100.0)	
Level of study				P=0.84
1 st year	11(42.3)	15(57.7)	26(100.0)	
2 nd year	20(35.1)	37(64.9)	57(100.0)	
3 rd year	15(44.1)	19(55.9)	34(100.0)	
4 th year and Above	16(40.0)	24(60.0)	40(100.0)	
Total	62(39.5)	95(60.5)	157(100.0)	

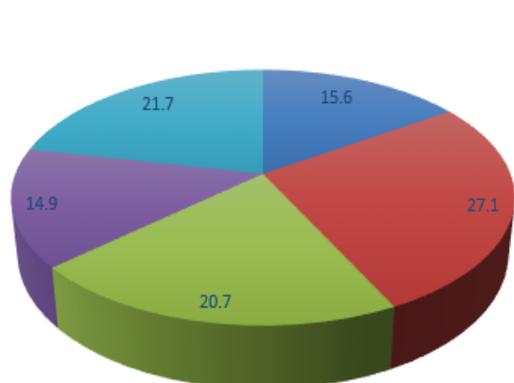


Figure 1: Distribution of the respondents by faculties

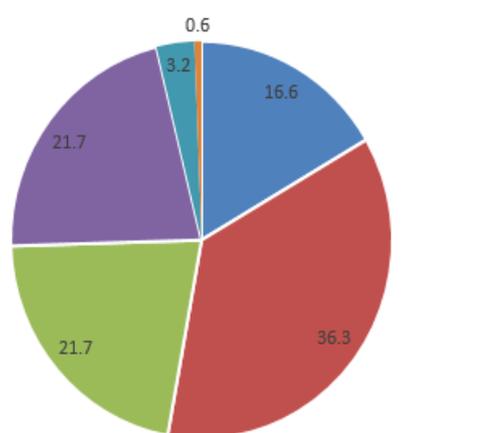


Figure 2: Level of study of the respondents

Discussion:

Missing tooth/teeth could be caused by a variety of factors including; caries, trauma and periodontal diseases.¹³ When missing teeth are not replaced, it could lead to an unacceptable outcome. Undergraduate students may be faced with tooth loss at any point in time and it becomes important to see how this is being handled hence the reason for this study.

The age range for this study was 16 to 21 years and most were single. This is the usual age and marital status of undergraduates in Nigerian universities.¹⁴ Most undergraduate students are single being that most of them are dependents relying on their parents and guardians for a living and hence will not be able to support a family of their own.

The self-reported prevalence of missing teeth in this study was 38.3% which appears to be higher when compared to a previous Nigerian study which reported a prevalence of 14.7%² and close to 33.8% reported in another Nigerian study.¹⁵

The differences observed in the prevalence may be as a result of the study population. Akinboboye et al.² studied only medical students who may have had better exposure to oral health awareness to prevent tooth loss, While Oremusu and Uti's study population was derived from a community consisting of varied population, hence its closeness to that observed in this study which is not a streamlined community of medical students.¹⁵

The prevalence of missing teeth in this study was however, lower than that of a community-based study with a prevalence of 83.5%.¹⁶

The difference in prevalence of missing teeth could be because this present study is self-reported and also the study population is stream lined to undergraduate students who are more enlightened and have educational

advantage compared to a community population.

Furthermore, ignorance on the various means of tooth replacement by the respondents in the community-based study may have contributed to the disparity. This is a pointer to the need for oral health education and awareness among the study population.

A good observation in this study was that more than half of the tooth loss accounted for was anterior teeth. The prognathic nature of the maxillary anterior teeth make them a major victim of tooth loss following trauma which is a major cause of tooth loss among the young.¹⁷ This corroborates the result of an earlier study.² However, in a study by Oremusu and Uti,¹⁵ there was more posterior tooth loss. This could largely be explained by their study being a community-based study with a varied population of both the young and the elderly.

An erudite reflection of this study showed that more than half of the respondents who had missing teeth, had a form of replacement for their missing teeth bringing the unmet prosthetic need to 39.5%, this is low compared to 88.6%² and 57.0%¹⁸ in previous studies. This is quite fascinating as this study was carried out among undergraduate students of different specialties while the other study was carried out among medical students who are meant to be closer to the dental clinics and dental students. The reason for the low unmet prosthetic need could be the close approximation of the study site to a teaching hospital with a dental clinic and students who report to the health Centre are sometimes referred there. Furthermore, replacement of missing teeth has become one of the most important needs of patients attending clinics to

restore aesthetics and/or function¹⁸ with unmet prosthetic need significantly associated with older age, lower income and rural residence.¹⁹

The higher proportion of anterior teeth replaced is not astonishing as anterior teeth which is part of the facial features are synonymous with aesthetics and beauty and tend to attract attention when missing²⁰ and they also tend to have an important influence on the perception of an individual's personality.²¹

This study revealed no association between missing teeth and gender, age group, marital status, faculty and level of study. This was supported by previous studies.^{6,19} However, other studies documented a relationship between tooth loss and age, gender and level of education.^{15,22}

Conclusion: The prevalence of missing teeth and unmet prosthetic need was high, highlighting the need for oral health education and increased awareness of the possible prosthetic rehabilitation procedures available for replacing missing teeth.

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